Climate Change and Landscape and Heritage in Flanders (Belgium) – A Spatial Planning Strategic Research Project

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An interdisciplinary research Group at the University of Ghent started a 4 years research project to develop spatial planning strategies anticipating to possible effects of climate change in Flanders. The objectives are a qualitative exploration, through research by design, of possible spatial planning concepts for dealing with changes of spatial structures as a result of climate change, and an assessment of existing planning policy instruments and public governance procedures related to the implementation of such spatial adaptation strategies. One of the aims of the project is to define a relevant typology of landscape elements in Flanders region (Belgium) susceptible to be affected by climate change, and to assess their sensitivity. This will result in the development of adaptation strategies for spatial planning and landscape and heritage management.

Impact of Past Climate Changes on the River Scheldt

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Changes in the environment due to climate changes have always been a threat to man's habitat. The evidence of these changes is also recorded in the sediments deposited during the last 15000 years in the valleys of, amongst others, the river Scheldt. Our research involves the study of these fluvial sediments in the Wijmeersen, with the aim to reconstruct the sedimentary palaeoenvironments and the palaeoecology.

Due to the climate amelioration at the onset of the Late Weichselian, the natural environment underwent a drastic change. A predominantly aeolian environment changed into a fluvial one. During the Late Weichselian the river Scheldt was and remained a meandering river in a tundra landscape. In the Wijmeersen, the meandering Scheldt migrated on different levels and formed at least two channels, which remained simultaneously active. The milder climate promoted an ever denser forest vegetation, which in turn resulted in a tremendous increase of evapotranspiration. As a consequence discharge decreased and the channels became underfit. Only in a limited part stream flow took place, overbank deposition and peat formation predominated within these channels. Pollen analyses and C14 dating show that this aggradation within the channels had started in the Allerød.

When the gullies were nearly filled up, the fluvial morphology and the vegetation adapted to the general water surplus resulting from a lowering of the gradient and a raise of the groundwater level, the latter one reinforced by the worldwide climate change. The fluvial style adjusted to these changes by becoming an anabraching system. Further modification of the hydrological regime as a consequence of deforestation, agriculture and climatological impact affected the evolution of the anabraching river into a one-gully river. The "new Scheldt" came into being. Initially the river was rather dynamic, with several breakthroughs.

Climates of Heritage Conservation

Responding to the Challenge of Global Climate Change Trough Public Engagement and Social Innovation

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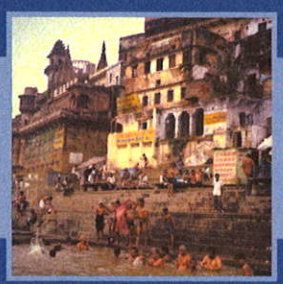

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